

# Astrometry with the Space Interferometry Mission

Stephen C. Unwin

Jet Propulsion Laboratory, California Institute of Technology

## Abstract

The Space Interferometry Mission (SIM) will be the first space-based optical interferometer designed for precision astrometry. As well as enabling forefront astronomical science, SIM will serve as a technology pathfinder for future missions, in NASA's Origins Program, such as the Terrestrial Planet Finder. SIM expected to yield 4 microarcsecond absolute position measurements of stars down to 20 magnitude. Launch is currently planned for mid-2006, and the mission duration is 5 years. SIM will perform sensitive searches for sub-stellar and planetary companions to nearby stars, and will be sensitive to the astrometric 'wobble' signature to a level of about 1 microarcsecond. With precision global astrometry, SIM will address a important variety of science questions relating to the formation and dynamics of our Galaxy.

This talk will briefly summarize the current status of the SIM project, and will describe the instrument design and operation. For global astrometry, SIM requires a grid of astrometrically stable stars, selected prior to launch. The selection and characterization of candidate stars poses an interesting challenge, which is essentially the inverse of the planet-detection problem. An approach to the astrophysical selection of grid stars will be presented.

---

## Acknowledgement:

The work described in this abstract was sponsored by the National Aeronautics and Space Administration (NASA and carried out by the Jet Propulsion Laboratory (JPL)

## Keywords: